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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/840,480 | 04/23/2001 | Del C. Schroeder | 705579US1 | 5782 |

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EXAMINER

SLITERIS, JOSELYNN Y

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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3616

DATE MAILED: 12/12/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/840,480

Applicant(s)

SCHROEDER ET AL.

Examiner

Joselynn Y. Sliteris

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 13-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 April 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

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DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-12 in Paper No. 4 is acknowledged.
2. Claims 13-27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 4.

Drawings

- ✓ 3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "means for pivotally supporting said composite spring to said ... vehicle wheel assembly" in claims 3 and 6 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

- ✓ 4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 64 (pg 8 line 3). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

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5. Applicant is required to submit a proposed drawing correction in reply to this Office action. However, formal correction of the noted defect may be deferred until after the examiner has considered the proposed drawing correction. Failure to timely submit the proposed drawing correction will result in the abandonment of the application.

Specification

6. The disclosure is objected to because of the following informalities: on pg 1 line 11, "and more specifically," should be deleted; on pg 3 line 18 & pg 4 line 9, "graphite" should be --glass--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 7-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Regarding claim 7, the recitation "said sinusoidal shape" in line 3 lacks proper antecedent basis in the claim.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Booher (U.S. Patent 4,772,044), as cited by applicant.

12. Regarding claim 1, Booher discloses a vehicle suspension system as in the present invention comprising:

a longitudinally extending vehicle frame 22;

a vehicle wheel assembly 30, 32; and

a composite spring 50 having a sinusoidal profile spanning said vehicle frame and said vehicle wheel assembly (Figs. 2-7).

13. Claims 1 and 2 are rejected under 35 U.S.C. 102(b) as being anticipated by Finn et al. (U.S. Patent 4,540,197).

14. Regarding claim 1, Finn discloses a vehicle suspension system as in the present invention comprising:

a longitudinally extending vehicle frame;

a vehicle wheel assembly 36, 10; and

a composite spring 48 having a sinusoidal profile spanning said vehicle frame and said vehicle wheel assembly (Fig. 7).

15. With respect to claim 2, Finn discloses the vehicle suspension system as in the present invention, further comprising means for pivotally supporting 72 said composite spring between said vehicle frame.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

17. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kusaka et al. (U.S. Patent 5,251,930) in view of Finn et al. (U.S. Patent 4,540,197).

18. Regarding claim 1, Kusaka discloses a vehicle suspension system as in the present invention comprising:

a longitudinally extending vehicle frame;

a vehicle wheel assembly 1-3; and

a composite spring 5 spanning said vehicle frame and said vehicle wheel assembly (Fig. 7).

But Kusaka does not disclose the spring having a sinusoidal profile. Finn discloses that it is known in the art to provide a composite spring 48 having a sinusoidal profile (Fig.

7). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the composite spring of Kusaka with the sinusoidal profile of Finn, in order to readily adjust the roll rate of the suspension without affecting ride rate.

19. With respect to claims 2-6, Kusaka discloses the vehicle suspension system as in the present invention further comprising:

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- means for pivotally supporting 6 said composite spring between said vehicle frame;
- means for pivotally supporting A said composite spring to said vehicle wheel assembly;
- a parallel opposing vehicle wheel assembly and a parallel opposing extending vehicle frame, wherein said composite spring spans transversely between said opposing vehicle wheel assemblies and said opposing extending vehicle frames;
- means for pivotally supporting 6 said composite spring between said parallel opposing vehicle frame; and
- means for pivotally supporting A said composite spring to said parallel opposing vehicle wheel assembly.

20. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kusaka et al. (U.S. Patent 5,251,930) in view of Finn et al. (U.S. Patent 4,540,197) as applied to claim 1 above, and further in view of Ryan (U.S. Patent 4,969,633), as cited by applicant.

21. Regarding claim 7, Kusaka and Finn disclose the claimed invention except for a neutral axis. Ryan discloses that it is known in the art to provide a composite spring 1 comprising a neutral axis 13 extending the length of the spring at the midpoint. It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the composite spring of Kusaka and Finn with the neutral axis of Ryan,

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in order to be able to sever the fiber reinforcement without adversely affecting the physical properties of the spring.

22. Claims 8-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kusaka et al. (U.S. Patent 5,251,930) in view of Finn et al. (U.S. Patent 4,540,197), Ryan (U.S. Patent 4,969,633) as applied to claim 7 above, and further in view of Lawson (U.S. Patent 6,361,032).

23. Regarding claims 8-11, Kusaka, Finn, and Ryan disclose the claimed invention except for the carbon fiber. Lawson discloses that it is known in the art to provide a composite spring 10, 12 comprising carbon fiber 50 spanning the length of the spring at and below the neutral axis; and glass fiber 52 spanning the length of the spring and surrounding the carbon fiber (Figs. 2, 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the composite spring of Kusaka, Finn, and Ryan with the carbon fiber and glass fiber of Lawson, in order to improve the spring's stiffness while maintaining flexibility.

24. Regarding claim 12, Kusaka, Finn, Ryan, and Lawson disclose the claimed invention except for each of the edges being formed of a 5/16" radius. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form each of the edges of a 5/16" radius, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

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Conclusion


25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

26. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joselynn Y. Sliteris whose telephone number is 703-308-8225. The examiner can normally be reached on Mon-Fri 8:30 am - 6:00 pm; alternating Fri off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul N. Dickson can be reached on 703-308-2089. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-2571 for regular communications and 703-305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1134.

JYS 
December 10, 2002


PAUL N. DICKSON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600
12/10/02